



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/618,708	07/18/2000	Ramon Coronel	36-0032	2014

7590

08/21/2002

Patent Counsel TRW Incorporated  
Space & Electronics Groups  
One Space Park E2/6051  
Redondo Beach, CA 90278

EXAMINER

WILLE, DOUGLAS A

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 08/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/618,708

Applicant(s)

CORONEL ET AL

Examiner

Douglas A Wille

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5,37,41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,37,41 and 42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

Applicant noted that in the restriction requirement the second group was indicated as being in class 59 and it should have been 359.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 4, 37 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavracky et al. in view of Fitch et al. and D'Amato et al.

3. With respect to claim 1, Zavracky et al. show a three dimensional structure (see Figure 14 and column 5, line 34) with SOI structures and show the use of fiber optic interconnects (column 12, line 39 et seq.). The Zavracky et al. structure shows that the couplers extend beyond each level and such extension is necessary to reach the next level. Fitch et al. show a stacked structure where the stack units are SOS (see column 3, line 55 and column 7, line 31). It would be obvious to replace the SOI with SOS as a design alternative. D'Amato et al. shows the details of a fiber optic coupling which specifically shows a perpendicular fiber mounting with side coupling by means of a grating tap (see cover Figure and abstract). It would have been obvious to use the D'Amato et al. technique in the Zavracky et al. device to provide details which are not described there.

Art Unit: 2814

4. With respect to claims 2 and 41, the grating couplers obviously will couple light both into and out of the fiber.

5. With respect to claim 3, the coupler is Bragg.

6. With respect to claim 4, there is a plurality of devices.

7. With respect to claim 37, Zavracky et al. show a three dimensional structure (see Figure 14 and column 5, line 34 et seq.) with SOI structures and show the use of fiber optic interconnects (column 12, line 39). The Zavracky et al. structure shows that the couplers extend beyond each level and such extension is necessary to reach the next level. Fitch et al. show a stacked structure where the stack units are SOS (see column 3, line 55 and column 7, line 31). It would be obvious to replace the SOI with SOS as a design alternative. D'Amato et al. shows the details of a fiber optic coupling which specifically shows a perpendicular fiber mounting with side coupling by means of a grating tap (see cover Figure and abstract). It would have been obvious to use the D'Amato et al. technique in the Zavracky et al. device to provide details which are not described there. The grating couplers obviously will couple light both into and out of the fiber.

8. Claims 5 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavracky et al. in view of Fitch et al. and D'Amato et al. and further in view of Tanguay, Jr. et al.

9. Tanguay, Jr. et al. shows a slab waveguide using grating input/output couplers (see cover Figure and column 5, line 47 et seq.). It would have been obvious to use the slab wave guides of Tanguay, Jr. et al. in place of the fiber waveguides as a design alternative since the slab waveguide structure provides the capability to include other features in the slab substrate such as electro-optic effects which could be used for tailoring the coupling.

*Response to Arguments*

10. Applicant's arguments filed 7/3/02 have been fully considered but they are not persuasive.
11. Applicant's remarks related to the class of the restriction requirement are addressed above and since the requirement has been made final it is not considered further.
12. Applicant states that Zavracky et al. do not show fiber interconnects but Zavracky et al. do reference the fiber interconnects where the Examiner said it was located and Applicant's reference to column 5, line 34 is not understood.
13. Applicant then correctly locates the reference to Zavracky et al. and states that it does not show how to accomplish this but such a showing is not required since using a fiber in place of a wire is within ordinary skill in the art. Note that Zavracky et al. show the use of a fiber coupler and D'Amato et al. show further details.
14. Since Van Zeghbroeck is no longer relied upon comments addressed thereto are moot.
15. Applicant's remarks related to physical insertion are moot since these features are not claimed.
16. The new limitation of coupling thru the side is addressed in the new rejection above.
17. It is not understood why claims 9 and 10 have been cancelled since they are non-elected and are not under consideration.

*Conclusion*

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2814


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A Wille whose telephone number is (703) 308-4949. The examiner can normally be reached on M-F (6:15-3:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

August 15, 2002



Olik Chaudhuri  
Supervisory Patent Examiner  
Technology Center 2800